

ance of "abnormal distributions." Well and good, if the S.P.R. have not under-estimated the importance of examining the actual distribution of cards cut and of cards guessed, they will have kept a record of each card cut and each card guessed, card for card. If they have not done so, then their experiment is scientifically of no value; if they have done so, then the analysis of the distributions of the cards cut and the cards guessed ought to have accompanied any publication of these experiments. It is an obvious, but by *no means sufficient*, condition for a proper experiment. If the Secretary of the S.P.R. will place in my hands the actual analyses of the cards cut and the cards guessed made by a competent mathematician, *before* the publication in their *Proceedings* of the card guesses, and proving that they did at that time fully consider the point, and take this obvious precaution against deception, my estimation of the "scientific acumen" of the S.P.R. will at any rate on this point be modified.

I, of course, do not refer to my friend Prof. Edgeworth's investigations, which do not touch the question of the distributions of cards cut and cards guessed. KARL PEARSON.

MAY I call attention to Prof. Lodge's method of "silencing" me in your issue of January 10. It bears very closely upon this question of the effect of psychical research upon the investigator's reasoning. He quotes the preface of Mr. Podmore's book to show that that gentleman is not a "bigoted upholder of the certainty of telepathy," and the casual reader would scarcely guess that, in truth, I never asserted that he was. I complained of the very air of open-mindedness in that preface to which Prof. Lodge's quotation witnesses, and showed by an instance, that in the body of the book question-begging occurred which was all the more dangerous on account of the liberal tone of the opening portion. I made no objection to the individual prosecution of psychical research—only to its public recognition before it has produced more definite results than it has done so far. So much for the "silencing." It shows either that Prof. Lodge has not read my review, or that he has misunderstood it; and in either case it enforces my contention that these investigators are over-hasty. The phrase "irresponsible detractor," points in the same direction. H. G. WELLS.

The Suspended Animation of Snakes.

IN NATURE of December 6, p. 128, Mr. G. E. Hadow asks whether the snakes feign death for protective purposes, with intent to deceive, or whether the strange action is the result of a general nervous inhibition, produced reflexly by the action of fright, which would render it more or less analogous to a fainting fit. He and others of your readers will be interested in an additional observation that, in a measure, answers his question. The snake, a "hog-nose," "spreading adder," or "blowing viper," *Heterodon platyrhinus*, upon which Dr. L. C. Jones based his note in NATURE, November 29, p. 107, the origin of the discussion, was presented to me about five months ago. While in my possession it has repeatedly verified Dr. Jones's statements; and, besides, it has proved that it does not depend upon the feint alone. The latter is preceded by another action that apparently has not been published hitherto. After being teased a little, the animal, vigorously bending from side to side, the tail abruptly raised and the vent slightly protruded, begins to smear itself over the back with urine and excrement, the odour of which is so excessively nauseous that observers are quickly driven back, the better satisfied if they escape without a spatter in their faces. If the teasing stops with this, the victim glides away to hide; but if still more worried, it takes up the contortions that end in the trance-like condition, lasting ten minutes to half an hour, or until the creature feels that it may safely revive. The specimen still lives, and does not discard its filthy habit on prolonged acquaintance. Much handling and familiarity with annoyance make little difference in behaviour, or in disposition to take advantage of the peculiar tactics. In the inception of the habits these actions most likely were due to terror; possibly the trance was a real faint; but, however their utility may have been discovered, it is evident at the present time that confidence in them as means of securing immunity from torment induces their practice on occasions when the existence of actual fright is hardly possible. At such times it would be difficult to convince witnesses that the snake is not intelligently employing what it knows to be its best methods of protection.

Cambridge, Mass., Dec. 27, 1894.

S. GARMAN.

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I do not think that Mr. Vincent can be right in supposing that the suspended animation of grass snakes has nothing to do with simulation. I have never observed it in the case of a snake when unmolested in a glass case (as he has), though I have kept hundreds so, but noticed it first when catching snakes in the New Forest. After much struggling and the usual offensive methods of defence had proved vain, one has, in several instances, suddenly hung limp and apparently lifeless on my hand. It could hardly be a faint or anything but death-feigning, for as soon as I put it on the ground, or allowed it no longer to feel my hand, it recovered at once, and was off like a shot. I took particular pains to test this, as I was much surprised at the circumstance, which I did not remember having seen mentioned in any book. In all cases it was a *dernier ressort*, the ejection of food and the effusion of smell having preceded.

W. KENNEDY.

"Finger-Print" Method.

IN my letter on the subject (NATURE, December 27, 1894, p. 199), I have introduced my assertion of the old Japanese usage of the "thumb-stamps" on legal papers, with a qualifying clause—"although at present I have no record to refer to." Continuing in my search, I have come across a passage which gives confirmation to the statement. It is in the *Füzoku Gwahô*, No. 50, p. 6, Tôkyô, February 10, 1893, where the details of the bastinado inflicted on criminals during the *ancien régime* are given, and reads as follows:—"When the criminals' guilt was ascertained, and they signed with 'thumb-stamps' on papers in the Court, they were sent to prison with the magistrate's words, 'Sentence shall follow,' which they used to understand as the signal of the approach of the day of punishment."

December 31, 1894.

KUMAGUSU MINAKATA.

A White Rainbow.

THE white rainbow is so rare as to deserve noting. One was visible at Westnewton, Aspatria, for more than half an hour on Saturday, January 5. The band was much broader than in the ordinary bow, and the arc was formed in the upper intermediate cloud drift. This drift consisted of a light pallium of irregular cirro cumulus. It is important to observe that cumulus was forming, from above, at the time; i.e. the cirro cumulus was melting and descending into ordinary cumulus. A patch of this cumulus formed (under observation) and crossed beneath the bow. It then became coterminous with the western section of the arc, which blended with the cloud, and was of similar tint. Hard, dry frost continued and lasted till January 13. Barometer steady at time.

SAMUEL BARBER.

Westnewton, Aspatria, January 9.

P.S.—Connote with the above the condition of the weather on the Continent; also violent thunderstorms on following day in Cornwall; also snowstorms in Cumberland and Scotland within few days.—S. B.

AMERICAN TOPOGRAPHY.¹

WE have it on the authority of Prof. Gannett that, at the present rate of progress, the series of topographical maps of the United States, which was commenced in 1882, will require no less than fifty years for completion, and that the cost of this great undertaking will not fall far short of twenty million dollars. The map is primarily intended to meet the needs of the geologists of the Survey; but it has been thought economical to make such arrangements that the resulting map may be adequate to serve all purposes for which general topographic maps are used. Its scope is limited to the representation of the larger natural features, and the artificial features which are of general or public interest, to the exclusion of those which are purely of a private character, and therefore liable to rapid changes.

In the vast area covered by the United States, there is a great diversity both of natural and cultural features, and the extent of the survey and the scales of the maps

¹ "United States Geological Survey. A Manual of Topographic Methods." By Henry Gannett, Chief Topographer. (Washington: Government Printing Office, 1893.)